PATENT ABSTRACTS OF JAPAN

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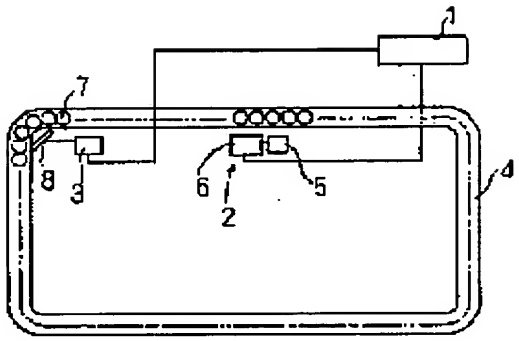
(54) FOOD SALE MANAGEMENT SYSTEM

(57)Abstract:
PURPOSE: To provide a food sale managing system which can manage sales time point information and freshness/merchandise assortment information at real time.
CONSTITUTION: An individual identification number is added to a tray 7 for placing food, and a lane 4 composed of an endless belt conveyer for conveying the trays is provided. A check driver 3 is provided to recognize the identification number of the tray passed on the lane and to generate passage data from the passing time of this identification number and the tray, and a managing driver 2 is provided to register the class of foods placed on the lane by a manager, the identification number of the tray and preparing time as prepadation data, to register the identification number of the tray for foods abandoned from the lane and the time of abandonment as loss data and to monitor the sales conditions of foods for the manager. Then, both these drivers are connected to a host computer 1 for performing data processing and the operation control of respective system parts, management data for the freshness and sales conditions of foods placed on the lane 4 are outputted from the managing dirver based on various data transmitted to this host computer, and sales data such as the information of sales time point are outputted from the host computer.



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TECHNICAL FIELD

[Industrial Application] This invention relates to the suitable system for management of the sale situation of food that freshness is required in more detail, and point-of-sales information, about the system which manages a food sale.

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PRIOR ART

[Description of the Prior Art] Freshness management of food is important for a sale of food. Especially point-of-sales information, such as time of day when food was sold, serves as leading data, when managing and predicting the products offered of stocking or food.
[0003] Although the restaurants where a visitor can choose a favorite thing freely from the food which displayed food [finishing / cooking] on the endless conveyor etc., was made to move in a visitor front and was displayed are increasing in number in recent years, the freshness of the food which also sets at such a store, and is offered and sold, and management of products offered are important.
[0004] The information which judges which seafood used in sushi toppings sold at which time of day could not be acquired, but there was no other way but stocking of foods, or to depend [of sushi / of a manager slack cook] in the sushi store of the type from which a visitor chooses freely the sushi displayed on the conveyor.

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TECHNICAL PROBLEM

[The technical problem which invention makes solution ******] This invention aims at offering the food sales management system which can manage point-of-sales information and freshness, and products-offered information on real time.

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DESCRIPTION OF DRAWINGS

[Brief Description of the Drawings]
[Drawing 1] Drawing showing the configuration of the device used for the example of this invention.
[Drawing 2] The top view showing an example of an I/O panel.
[Drawing 3] The amplification top view showing the disc which sealed the transponder.
[Drawing 4] Drawing of longitudinal section showing the mounting condition of a transponder.
[Drawing 5] Drawing showing the data delivery condition between the devices used for an example.
[Drawing 6] The flow chart which shows the control procedure at the time of preparation registration and loss registration.
[Drawing 7] The flow chart which shows the control procedure at the time of check processing.
[Drawing 8] Drawing showing other examples.
[Description of Notations]
1 Host Computer
2 Management Driver
3 Check Driver
4 Lane
5 Radar
6 I/O Panel
6a Processing circuit changing switch
6b Processing circuit changing switch
6c Classification carbon button
6d CRT
6e Loudspeaker
6f Classification plotting board
7 Pan
8 Radar
9 Transponder
10 Disc
11 Image Processing System

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DETAILED DESCRIPTION

[Detailed Description of the Invention]
[0001]
[Industrial Application] This invention relates to the suitable system for management of the sale situation of food that freshness is required in more detail, and point-of-sales information, about the system which manages a food sale.
[0002]
[Description of the Prior Art] Freshness management of food is important for a sale of food. Especially point-of-sales information, such as time of day when food was sold, serves as leading data, when managing and predicting the products offered of stocking or food.
[0003] Although the restaurants where a visitor can choose a favorite thing freely from the food which displayed food [finishing / cooking] on the endless conveyor etc., was made to move in a visitor front and was displayed are increasing in number in recent years, the freshness of the food which also sets at such a store, and is offered and sold, and management of products offered are important.
[0004] The information which judges which seafood used in sushi toppings sold at which time of day could not be acquired, but there was no other way but stocking of foods, or to depend [of sushi / of a manager slack cook] in the sushi store of the type from which a visitor chooses freely the sushi displayed on the conveyor.
[0005]
[The technical problem which invention makes solution ******] This invention aims at offering the food sales management system which can manage point-of-sales information and freshness, and products-offered information on real time.
[0006]
[Means for Solving the Problem] In order to attain the above-mentioned object, the food sales management system of this invention gives the identification number according to individual to the pan which carries food. The check driver which prepares the lane which consists of an endless conveyor for carrying a pan, recognizes the identification number of the pan which passes through a lane top, and generates passage data from the passage time of day of this identification number and a pan, The identification number and preparation time of day of the classification of the food which a manager carries on a lane, and a pan are taught. As data Moreover, the identification number and abolition time of day of a pan of food which are discarded from a lane are registered as loss data. And a management driver for a manager to supervise the sale situation of food is prepared. Both [these] drivers are connected to the host computer which performs motion control of data processing and each part of a system. Based on said various data sent to this host computer, the freshness of the food carried on the lane and the management data of a sale situation shall be outputted from said management driver, and it shall be outputted from the host computer in sales data, such as point-of-sales information.
[0007]
[Function] The identification number given separately in the pan of the food carried on a lane is taught with the classification and preparation time of day of food, is registered from a management driver as data, and is sent to a host computer. The food carried on the lane which consists of an endless conveyor moves in a visitor front, and the identification number of the pan which carried this food is recognized by the check driver, and is sent to a host computer as passage data with passage time of day.
[0008] The food with which passage data are no longer sent based on said preparation data and passage data in a host computer is judged to be what was sold, and it accumulates as sales data.
[0009] Moreover, to the food which remains on the lane exceeding fixed time amount, freshness warning is outputted through a management driver from a host computer. Furthermore, when the classification of the food carried on the lane in the host computer is supervised and a bias is in the classification of food, products-offered warning is outputted through a management driver from a host computer.
[0010]
[Example] The food sales management system applied to this invention below is explained in full detail based on the example in the case of applying to a sale of sushi. Drawing 1 shows the configuration of the device used for a sale of sushi, and the management driver for supervising the host computer with which the sign 1 in drawing performs system-

wide data control and motion control of each part of a system, an entry of data, a sale situation concerning [2] the preparation of sushi and abolition, etc., and 3 show the check driver for recognizing the below-mentioned passage data.
[0011] The management driver 2 and the check driver 3 are formed in the kitchen of the rain 4 inside which consists of an endless conveyor which carries sushi before a visitor, it has connected with LAN (Local Area Network) between these managements driver 2 and the check driver 3, and the host computer formed outside the lane 4, and delivery of data has been made to be made mutually.
[0012] The host computer 1 shall have performed actuation of the management driver 2 and the check driver 3, control of data delivery, statistics processing of the data which store and manage and various data manage, a document output, etc. Moreover, the host computer 1 is equipped with external means of communications, and enables it to have sent various data outside using the telephone line etc.
[0013] The radar 5 for recognizing the identification number given separately is connected to the pan 7 which puts the prepared sushi on the management driver 2. As shown in drawing 2 , moreover, a manager slack cook inputs the classification of sushi into this management driver 2, or The processing circuit changing switches 6a and 6b for having prepared the manager the I/O panel 6 for telling a sale situation etc., teaching this I/O panel, and performing the change of registration processing and loss registration processing, It has loudspeaker 6e for CRT6d and voice for having formed the classification carbon buttons 6c and 6c for inputting the classification of sushi, and performing screen display, such as sales data, to perform freshness warning and products-offered warning.
[0014] In addition, 6f of signs in drawing is the classification plotting board for displaying the classification of the sushi corresponding to said classification carbon buttons 6c and 6c, and it enables it to have exchanged them according to the products offered of the day.
[0015] Since the radar 8 for recognizing each number of the pan 7 which goes around on a lane 4 is connected to the check driver 3 and this radar 8 has directivity in the below-mentioned transponder 9, the pan 7 has been formed inside the corner of a lane 4 which changes the sense.
[0016] As shown in drawing 3 , it has protected so that it may have fixed to the pars basilaris ossis occipitalis surrounded by the bottom of a pan 7 with adhesives etc. as shown in drawing 4 , and a transponder 9 may not mourn over the transponder 9 sealed in the disc 10 made of acrylic resin to the pan 7 which carries sushi in the case of washing of a pan, or desiccation.
[0017] This transponder 9 receives the electric wave emitted from radars 5 and 8, transforms this electric wave into power, it shall be a rod-like thing, the interior shall be equipped with an antenna and an electric-wave transmitter, and it shall have returned [it shall put a code signal original with each transponder on a modulated wave from an electric-wave transmitter,] it to the radar, and it uses this code signal for the identification number of a pan, carrying out.
[0018] Drawing 5 shows the relation of the data delivery in the system of this invention. Between a host computer 1 and the management driver 2, it teaches from the management driver 2 to a host computer 1, and data and loss data are sent for a warning indication signal to the management driver 2 from a host computer 1. a cook inputs preparation data from the classification carbon buttons 6c and 6c of the I/O panel 6 in the identification number and the management driver 2 of the sushi pan 7 put on a lane -- for example -- ** -- it is what taught the classification of sushi, such as ** and a shrimp, and added time of day, and since freshness fell, loss data add abolition time of day to the identification number of the sushi pan taken out from the lane.
[0019] A warning indication signal remains on a lane 4 exceeding fixed time amount, and has freshness warning which points out the sushi to which freshness fell, and products-offered warning when the difference which exceeded tolerance to the products offered set up beforehand occurs, and these warnings are outputted by a screen display of CRT6d, a beep sound of loudspeaker 6e, etc. which were prepared in the I/O panel 6 in the management driver 2.
[0020] Between a host computer 1 and the check driver 3, passage data are sent to a host computer 1 from the check driver 3. This passage data adds the time of day when sushi passed the radar 8 to the identification number of the sushi pan on the lane 4 recognized by the radar 8 connected to the check driver 3.
[0021] Next, the example of the procedure of the preparation data sent to a host computer 1, loss data, and passage data is shown. In the host computer 1, the data table of the number which added about 20 to the number of sheets of the pan which can be carried on a lane 4 is prepared, and various data processing is performed by moving data between this table.
[0022] Drawing 6 and 7 are flow charts which show the procedure of data processing in a data table, and the tables 1-4 shown below show an example of the condition of the data on a table concretely with this procedure.
[0023]
[A table 1]

識別番号	種別	仕込み時刻	通過時刻
0008	とろ	12：15：38	12：16：15
0015	たこ	12：14：10	12：14：38
0002	いか	12：13：20	12：14：15

[0024]
[A table 2]

識別番号	種別	仕込み時刻	通過時刻
0010	えび	12：16：12	
0008	とろ	12：15：38	12：16：15
0015	たこ	12：14：10	12：14：38
0002	いか	12：13：20	12：14：15

[0025]
[A table 3]

識別番号	種別	仕込み時刻	通過時刻
0010	えび	12：16：12	
0008	とろ	12：15：38	12：16：15
0002	いか	12：13：20	12：14：15

[0026]
[A table 4]

識別番号	種別	仕込み時刻	通過時刻
0002	いか	12：13：20	12：16：42
0010	えび	12：16：12	
0008	とろ	12：15：38	12：16：15
0015	たこ	12：14：10	12：14：38

Drawing 6 shows the registration procedure of the preparation data sent from the management driver 2, and loss data. With a host computer 1, if the message which teaches with the processing indication signal inputted from the processing circuit changing switches 6a and 6b of the I/O panel 6 in the management driver 2, and consists of data is acquired (S1), it will teach based on the message and registration processing or loss registration processing will be performed (S2, S3).
[0027] In preparation registration processing, if a host computer 1 teaches from the management driver 2 and data are received, it will investigate whether it is vacant out of a data table, and there is any record (S4). Here, when there is no empty record, the oldest data in a table, i.e., the lowest data, are outputted as sales data (S5). Next, the data which shifted all the data in a table to low order by one record (S6), and received them are put into the head of a table, i.e., the top record, (S7).
[0028] a motion of the data in the table [tables / 1 and 2] before and behind registration of preparation data -- being shown -- **** -- a condition [of a table 1] 4, i.e., lane, top -- ** -- if a shrimp is newly put on **, ****, and the place that appears how, the Ebino data (an identification number, preparation time of day) go into the top record, and the other existing data will be in the condition by which it is shifted to low order and shown in a table 2.
[0029] a loss -- registration -- processing -- **** -- a host computer -- one -- management -- a driver -- two -- from -- a loss -- data -- receiving -- if -- a lane -- a top -- from -- removing -- having had -- sushi -- a pan -- an identification number -- corresponding -- a table -- inside -- a record -- deleting (S8) -- relevance -- a record -- the following -- data -- one -- a record -- a part -- a high order -- shifting -- (-- S9 --) -- things -- a loss -- registration -- processing -- deleting -- having -- having been vacant -- a record -- burying . Abolition time-of-day data are added to the data in the deleted record, they are outputted as loss data (S10), and are stored into a host computer 1.
[0030] If a table 3 shows the example when loss registration processing is made from the condition of a table 2 and **** in a table 2 is disposed of, the data of **** will be deleted, and the table which was vacant by this is buried when all low-

ranking data shift to the record of one high order more.
[0031] Drawing 7 shows the procedure of performing check processing of the sushi which goes around on a lane 4, if a host computer 1 receives passage data from the check driver 3 (C1), will take out the record of the identification number which corresponds out of a data table, and will update passage time-of-day data (C2).
[0032] Next, all the data of a high order are shifted to low order by one record rather than the corresponding record (C3), and the applicable record which updated passage time-of-day data is put into the head of a table, i.e., the top record, (C4).
[0033] If the motion of the data in the table at the time of passing the radar 8 by which sushi was connected to the check driver 3 is shown from the condition of a table 2 and whether he wants for close to be in the lowest record in a table 2 passes a radar 8, a table 4 As shown in a table 4, while passage time-of-day data are updated, it is moved to the top record, and other data are shifted to the record of one low order.
[0034] Furthermore, it teaches with the passage time-of-day data updated in this check processing, and time-of-day data are compared (C5), and if the time amount to which the difference of these time-of-day data, i.e., sushi, was going around on the lane 4 exceeds fixed time amount defined in order to maintain the freshness of sushi (C6), a host computer 1 will send a warning indication signal to the management driver 2 (C7). The management driver 2 will emit freshness warning by loudspeaker 6b to the beep sound from CRT6a of an output unit 6 with a screen display again, if this warning indication signal is received.
[0035] Moreover, apart from the flow of the check processing showed in the flow chart of drawing 7 , with a host computer 1, the products offered for every classification of the sushi which be go around on a lane 4 based on the data in a table be supervise, and when there be a difference which exceed tolerance to the products offered plan under which these products offered be beforehand set as the host computer, an alarm signal be send to the management driver 2. The management driver 2 will emit products-offered warning from an output unit 6 like the case of freshness warning mentioned above, if this warning indication signal is received.
[0036] If data migration in the table mentioned above is repeated, the data with which it overflows from a table in the case of preparation registration processing will come out. The sushi applicable to this data is registered exceeding the marginal number of sheets which can be carried on a lane 4. And since this sushi has not passed a fixed time amount radar 8 and the renewal of the passage time of day by check processing is not made A visitor is judged to be what was taken out from on the lane 4, and the sale time of day predicted from the decision time of day is added to him, and he is accumulated in a host computer 1 as sales data. The sales data accumulated in the host computer 1 is processed into point-of-sales information and sales data, and a document output is carried out.
[0037] Moreover, by using the external means of communications prepared in the host computer, it bundles up, after closing the information on the sales data accumulated, for example, and it can send to the accounting pin center,large outside a store, or information, such as the amount of stocking of seafood used in sushi toppings of the next day, can be sent to a central kitchen.
[0038] In addition, although the identification number of a pan is recognized by electric-wave signal transfer between the transponder 9 and radars 5 and 8 which were attached in the pan 7 as a recognition means of an identification number, the bar code which shows an identification number to a pan is attached, and you may make it recognize with an optical reader in the example mentioned above.
[0039] Moreover, in the example mentioned above, classification carbon button 6c of the I/O panel 6 prepared in the management driver 2 as an input means of the classification of sushi is prepared, when a manager operates this carbon button 6c, the classification of sushi shall be inputted, but a classification input means may be constituted, as shown in drawing 8 .
[0040] The image processing system 11 similarly connected to the management driver 2 is formed above the radar 5 connected to the management driver 2 in this example. By irradiating light from the upper part of the sushi put on the pan 7, and carrying out the analysis of a spectrum of that reflected light, this image processing system 11 shall identify the configuration of sushi, a color, quality, etc., and shall recognize the classification of sushi.
[0041] If it carries out, a manager slack cook only lets the pan 7 which carried the prepared sushi to write pass between a radar 5 and an image processing system 11, and can register at once the identification number of the pan which carried sushi, and the classification of sushi.
[0042]
[Effect of the Invention] Since the food sales management system concerning this invention is the thing of a configuration of having mentioned above, the following effectiveness can be done so.
[0043] Since the food with which a sale is presented is managed with the identification number attached according to the individual in the pan which carries food and processes by adding data, such as classification of food, preparation time of day, and passage time of day, to this number, sale decision and various data processing can be performed easily. Since the sale situation of food can be supervised by the management driver and freshness warning and products-offered warning are outputted from a management driver, a manager can perform easily freshness management and the products offered meeting a sale plan.
[0044] Moreover, point-of-sales information can be acquired based on the sales data accumulated in the host computer,

and order and accounting statistics of foods can be performed to accuracy.

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EFFECT OF THE INVENTION

[Effect of the Invention] Since the food sales management system concerning this invention is the thing of a configuration of having mentioned above, the following effectiveness can be done so.
[0043] Since the food with which a sale is presented is managed with the identification number attached according to the individual in the pan which carries food and processes by adding data, such as classification of food, preparation time of day, and passage time of day, to this number, sale decision and various data processing can be performed easily. Since the sale situation of food can be supervised by the management driver and freshness warning and products-offered warning are outputted from a management driver, a manager can perform easily freshness management and the products offered meeting a sale plan.
[0044] Moreover, point-of-sales information can be acquired based on the sales data accumulated in the host computer, and order and accounting statistics of foods can be performed to accuracy.

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MEANS

[Means for Solving the Problem] In order to attain the above-mentioned object, the food sales management system of this invention gives the identification number according to individual to the pan which carries food. The check driver which prepares the lane which consists of an endless conveyor for carrying a pan, recognizes the identification number of the pan which passes through a lane top, and generates passage data from the passage time of day of this identification number and a pan, The identification number and preparation time of day of the classification of the food which a manager carries on a lane, and a pan are taught. As data Moreover, the identification number and abolition time of day of a pan of food which are discarded from a lane are registered as loss data. And a management driver for a manager to supervise the sale situation of food is prepared. Both [these] drivers are connected to the host computer which performs motion control of data processing and each part of a system. Based on said various data sent to this host computer, the freshness of the food carried on the lane and the management data of a sale situation shall be outputted from said management driver, and it shall be outputted from the host computer in sales data, such as point-of-sales information.

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OPERATION

[Function] The identification number given separately in the pan of the food carried on a lane is taught with the classification and preparation time of day of food, is registered from a management driver as data, and is sent to a host computer. The food carried on the lane which consists of an endless conveyor moves in a visitor front, and the identification number of the pan which carried this food is recognized by the check driver, and is sent to a host computer as passage data with passage time of day.
[0008] The food with which passage data are no longer sent based on said preparation data and passage data in a host computer is judged to be what was sold, and it accumulates as sales data.
[0009] Moreover, to the food which remains on the lane exceeding fixed time amount, freshness warning is outputted through a management driver from a host computer. Furthermore, when the classification of the food carried on the lane in the host computer is supervised and a bias is in the classification of food, products-offered warning is outputted through a management driver from a host computer.

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EXAMPLE

[Example] The food sales management system applied to this invention below is explained in full detail based on the example in the case of applying to a sale of sushi. Drawing 1 shows the configuration of the device used for a sale of sushi, and the management driver for supervising the host computer with which the sign 1 in drawing performs system-wide data control and motion control of each part of a system, an entry of data, a sale situation concerning [2] the preparation of sushi and abolition, etc., and 3 show the check driver for recognizing the below-mentioned passage data.
[0011] The management driver 2 and the check driver 3 are formed in the kitchen of the rain 4 inside which consists of an endless conveyor which carries sushi before a visitor, it has connected with LAN (Local Area Network) between these managements driver 2 and the check driver 3, and the host computer formed outside the lane 4, and delivery of data has been made to be made mutually.
[0012] The host computer 1 shall have performed actuation of the management driver 2 and the check driver 3, control of data delivery, statistics processing of the data which store and manage and various data manage, a document output, etc. Moreover, the host computer 1 is equipped with external means of communications, and enables it to have sent various data outside using the telephone line etc.
[0013] The radar 5 for recognizing the identification number given separately is connected to the pan 7 which puts the prepared sushi on the management driver 2. As shown in drawing 2 , moreover, a manager slack cook inputs the classification of sushi into this management driver 2, or The processing circuit changing switches 6a and 6b for having prepared the manager the I/O panel 6 for telling a sale situation etc., teaching this I/O panel, and performing the change of registration processing and loss registration processing, It has loudspeaker 6e for CRT6d and voice for having formed the classification carbon buttons 6c and 6c for inputting the classification of sushi, and performing screen display, such as sales data, to perform freshness warning and products-offered warning.
[0014] In addition, 6f of signs in drawing is the classification plotting board for displaying the classification of the sushi corresponding to said classification carbon buttons 6c and 6c, and it enables it to have exchanged them according to the products offered of the day.
[0015] Since the radar 8 for recognizing each number of the pan 7 which goes around on a lane 4 is connected to the check driver 3 and this radar 8 has directivity in the below-mentioned transponder 9, the pan 7 has been formed inside the corner of a lane 4 which changes the sense.
[0016] As shown in drawing 3 , it has protected so that it may have fixed to the pars basilaris ossis occipitalis surrounded by the bottom of a pan 7 with adhesives etc. as shown in drawing 4 , and a transponder 9 may not mourn over the transponder 9 sealed in the disc 10 made of acrylic resin to the pan 7 which carries sushi in the case of washing of a pan, or desiccation.
[0017] This transponder 9 receives the electric wave emitted from radars 5 and 8, transforms this electric wave into power, it shall be a rod-like thing, the interior shall be equipped with an antenna and an electric-wave transmitter, and it shall have returned [it shall put a code signal original with each transponder on a modulated wave from an electric-wave transmitter,] it to the radar, and it uses this code signal for the identification number of a pan, carrying out.
[0018] Drawing 5 shows the relation of the data delivery in the system of this invention. Between a host computer 1 and the management driver 2, it teaches from the management driver 2 to a host computer 1, and data and loss data are sent for a warning indication signal to the management driver 2 from a host computer 1. a cook inputs preparation data from the classification carbon buttons 6c and 6c of the I/O panel 6 in the identification number and the management driver 2 of the sushi pan 7 put on a lane -- for example -- ** -- it is what taught the classification of sushi, such as ** and a shrimp, and added time of day, and since freshness fell, loss data add abolition time of day to the identification number of the sushi pan taken out from the lane.
[0019] A warning indication signal remains on a lane 4 exceeding fixed time amount, and has freshness warning which points out the sushi to which freshness fell, and products-offered warning when the difference which exceeded tolerance to the products offered set up beforehand occurs, and these warnings are outputted by a screen display of CRT6d, a beep sound of loudspeaker 6e, etc. which were prepared in the I/O panel 6 in the management driver 2.
[0020] Between a host computer 1 and the check driver 3, passage data are sent to a host computer 1 from the check driver 3. This passage data adds the time of day when sushi passed the radar 8 to the identification number of the sushi

pan on the lane 4 recognized by the radar 8 connected to the check driver 3.
[0021] Next, the example of the procedure of the preparation data sent to a host computer 1, loss data, and passage data is shown. In the host computer 1, the data table of the number which added about 20 to the number of sheets of the pan which can be carried on a lane 4 is prepared, and various data processing is performed by moving data between this table.
[0022] Drawing 6 and 7 are flow charts which show the procedure of data processing in a data table, and the tables 1-4 shown below show an example of the condition of the data on a table concretely with this procedure.
[0023]
[A table 1]

識別番号	種別	仕込み時刻	通過時刻
0008	とろ	12：15：38	12：16：15
0015	たこ	12：14：10	12：14：38
0002	いか	12：13：20	12：14：15

[0024]
[A table 2]

識別番号	種別	仕込み時刻	通過時刻
0010	えび	12：16：12	
0008	とろ	12：15：38	12：16：15
0015	たこ	12：14：10	12：14：38
0002	いか	12：13：20	12：14：15

[0025]
[A table 3]

識別番号	種別	仕込み時刻	通過時刻
0010	えび	12：16：12	
0008	とろ	12：15：38	12：16：15
0002	いか	12：13：20	12：14：15

[0026]
[A table 4]

識別番号	種別	仕込み時刻	通過時刻
0002	いか	12：13：20	12：16：42
0010	えび	12：16：12	
0008	とろ	12：15：38	12：16：15
0015	たこ	12：14：10	12：14：38

Drawing 6 shows the registration procedure of the preparation data sent from the management driver 2, and loss data. With a host computer 1, if the message which teaches with the processing indication signal inputted from the processing circuit changing switches 6a and 6b of the I/O panel 6 in the management driver 2, and consists of data is acquired (S1), it will teach based on the message and registration processing or loss registration processing will be performed (S2, S3).
[0027] In preparation registration processing, if a host computer 1 teaches from the management driver 2 and data are received, it will investigate whether it is vacant out of a data table, and there is any record (S4). Here, when there is no empty record, the oldest data in a table, i.e., the lowest data, are outputted as sales data (S5). Next, the data which shifted all the data in a table to low order by one record (S6), and received them are put into the head of a table, i.e., the top record, (S7).
[0028] a motion of the data in the table [tables / 1 and 2] before and behind registration of preparation data -- being shown -- **** -- a condition [of a table 1] 4, i.e., lane, top -- ** -- if a shrimp is newly put on **, ****, and the place that appears how, the Ebino data (an identification number, preparation time of day) go into the top record, and the

other existing data will be in the condition by which it is shifted to low order and shown in a table 2.
[0029] a loss -- registration -- processing -- **** -- a host computer -- one -- management -- a driver -- two -- from -- a loss -- data -- receiving -- if -- a lane -- a top -- from -- removing -- having had -- sushi -- a pan -- an identification number -- corresponding -- a table -- inside -- a record -- deleting (S8) -- relevance -- a record -- the following -- data -- one -- a record -- a part -- a high order -- shifting -- (-- S9 --) -- things -- a loss -- registration -- processing -- deleting -- having -- having been vacant -- a record -- burying . Abolition time-of-day data are added to the data in the deleted record, they are outputted as loss data (S10), and are stored into a host computer 1.
[0030] If a table 3 shows the example when loss registration processing is made from the condition of a table 2 and **** in a table 2 is disposed of, the data of **** will be deleted, and the table which was vacant by this is buried when all low-ranking data shift to the record of one high order more.
[0031] Drawing 7 shows the procedure of performing check processing of the sushi which goes around on a lane 4, if a host computer 1 receives passage data from the check driver 3 (C1), will take out the record of the identification number which corresponds out of a data table, and will update passage time-of-day data (C2).
[0032] Next, all the data of a high order are shifted to low order by one record rather than the corresponding record (C3), and the applicable record which updated passage time-of-day data is put into the head of a table, i.e., the top record, (C4).
[0033] If the motion of the data in the table at the time of passing the radar 8 by which sushi was connected to the check driver 3 is shown from the condition of a table 2 and whether he wants for close to be in the lowest record in a table 2 passes a radar 8, a table 4 As shown in a table 4, while passage time-of-day data are updated, it is moved to the top record, and other data are shifted to the record of one low order.
[0034] Furthermore, it teaches with the passage time-of-day data updated in this check processing, and time-of-day data are compared (C5), and if the time amount to which the difference of these time-of-day data, i.e., sushi, was going around on the lane 4 exceeds fixed time amount defined in order to maintain the freshness of sushi (C6), a host computer 1 will send a warning indication signal to the management driver 2 (C7). The management driver 2 will emit freshness warning by loudspeaker 6b to the beep sound from CRT6a of an output unit 6 with a screen display again, if this warning indication signal is received.
[0035] Moreover, apart from the flow of the check processing showed in the flow chart of drawing 7 , with a host computer 1, the products offered for every classification of the sushi which be go around on a lane 4 based on the data in a table be supervise, and when there be a difference which exceed tolerance to the products offered plan under which these products offered be beforehand set as the host computer, an alarm signal be send to the management driver 2. The management driver 2 will emit products-offered warning from an output unit 6 like the case of freshness warning mentioned above, if this warning indication signal is received.
[0036] If data migration in the table mentioned above is repeated, the data with which it overflows from a table in the case of preparation registration processing will come out. The sushi applicable to this data is registered exceeding the marginal number of sheets which can be carried on a lane 4. And since this sushi has not passed a fixed time amount radar 8 and the renewal of the passage time of day by check processing is not made A visitor is judged to be what was taken out from on the lane 4, and the sale time of day predicted from the decision time of day is added to him, and he is accumulated in a host computer 1 as sales data. The sales data accumulated in the host computer 1 is processed into point-of-sales information and sales data, and a document output is carried out.
[0037] Moreover, by using the external means of communications prepared in the host computer, it bundles up, after closing the information on the sales data accumulated, for example, and it can send to the accounting pin center,large outside a store, or information, such as the amount of stocking of seafood used in sushi toppings of the next day, can be sent to a central kitchen.
[0038] In addition, although the identification number of a pan is recognized by electric-wave signal transfer between the transponder 9 and radars 5 and 8 which were attached in the pan 7 as a recognition means of an identification number, the bar code which shows an identification number to a pan is attached, and you may make it recognize with an optical reader in the example mentioned above.
[0039] Moreover, in the example mentioned above, classification carbon button 6c of the I/O panel 6 prepared in the management driver 2 as an input means of the classification of sushi is prepared, when a manager operates this carbon button 6c, the classification of sushi shall be inputted, but a classification input means may be constituted, as shown in drawing 8 .
[0040] The image processing system 11 similarly connected to the management driver 2 is formed above the radar 5 connected to the management driver 2 in this example. By irradiating light from the upper part of the sushi put on the pan 7, and carrying out the analysis of a spectrum of that reflected light, this image processing system 11 shall identify the configuration of sushi, a color, quality, etc., and shall recognize the classification of sushi.
[0041] If it carries out, a manager slack cook only lets the pan 7 which carried the prepared sushi to write pass between a radar 5 and an image processing system 11, and can register at once the identification number of the pan which carried sushi, and the classification of sushi.

[Translation done.]

* NOTICES *

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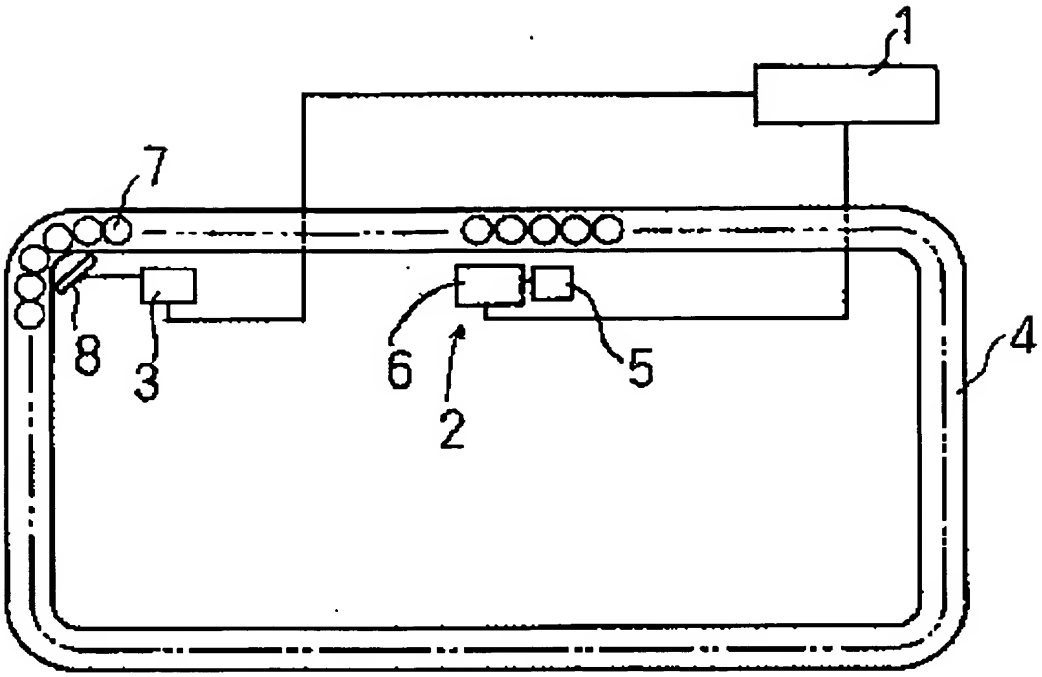
damages caused by the use of this translation.

1.This document has been translated by computer. So the translation may not reflect the original precisely.
2.**** shows the word which can not be translated.
3.In the drawings, any words are not translated.

CLAIMS

[Claim(s)]
[Claim 1] The check driver which gives the identification number according to individual to the pan which carries food, prepares the lane which consists of an endless conveyor for carrying a pan, recognizes the identification number of the pan which passes through a lane top, and generates passage data from the passage time of day of this identification number and a pan, The identification number and preparation time of day of the classification of the food which a manager carries on a lane, and a pan are taught. As data Moreover, the identification number and abolition time of day of a pan of food which are discarded from a lane are registered as loss data. And a management driver for a manager to supervise the sale situation of food is prepared. Both [these] drivers are connected to the host computer which performs motion control of data processing and each part of a system. Based on said various data sent to this host computer, the freshness of the food carried on the lane and the management data of a sale situation are outputted from said management driver.


1
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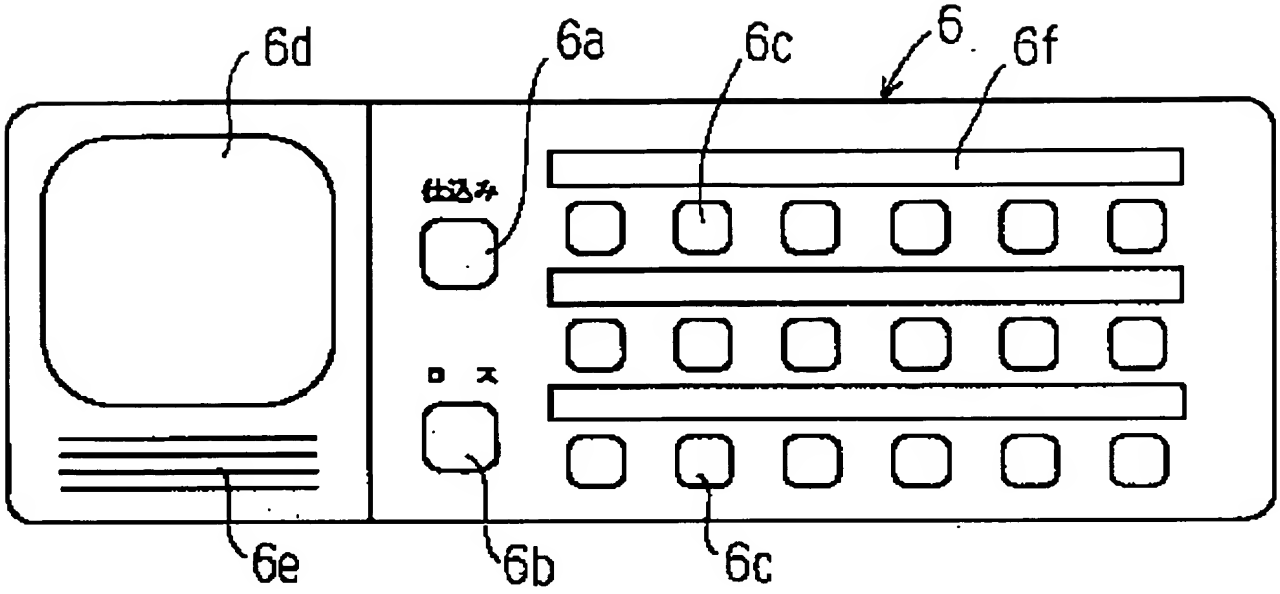
4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6
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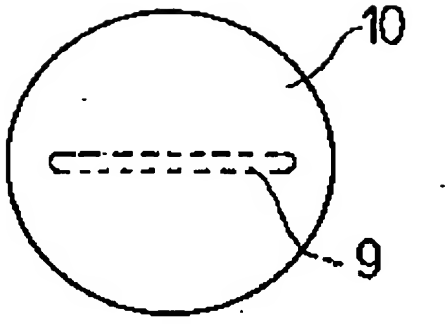
仕込み
ロス
6e
6b
6c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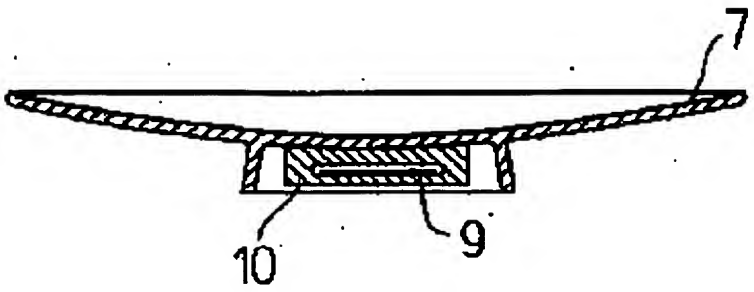
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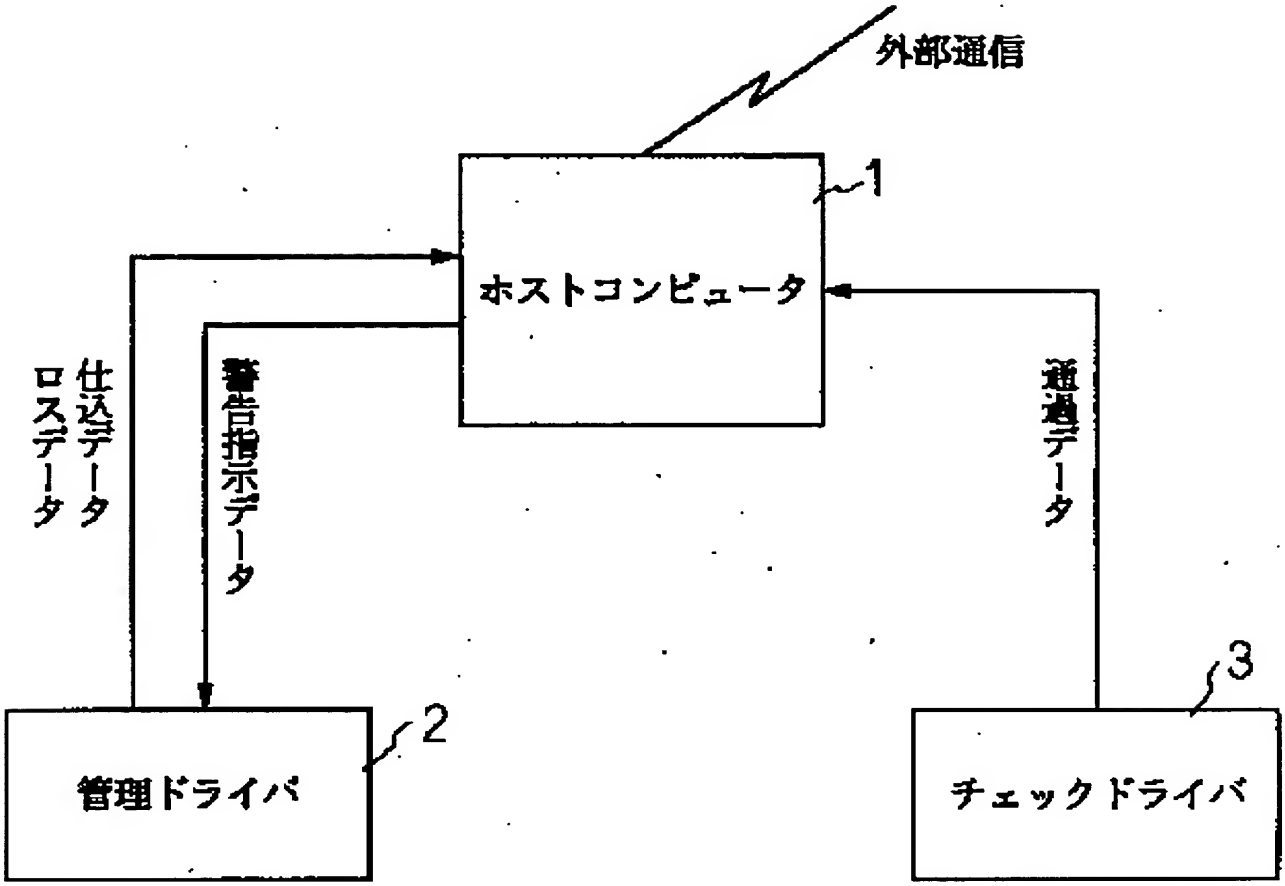
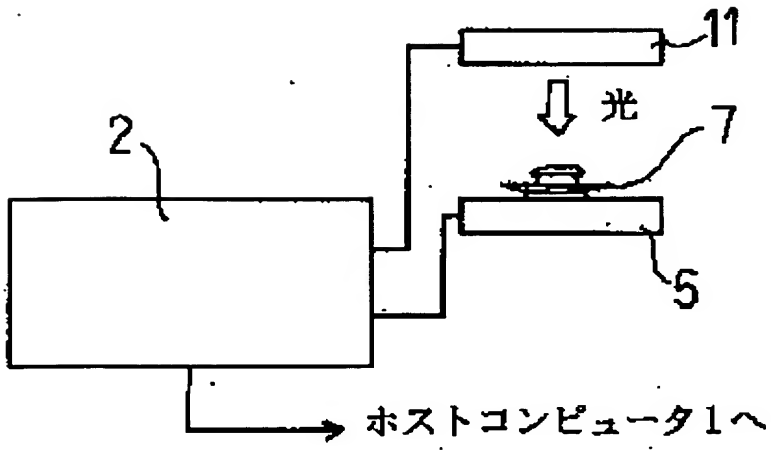
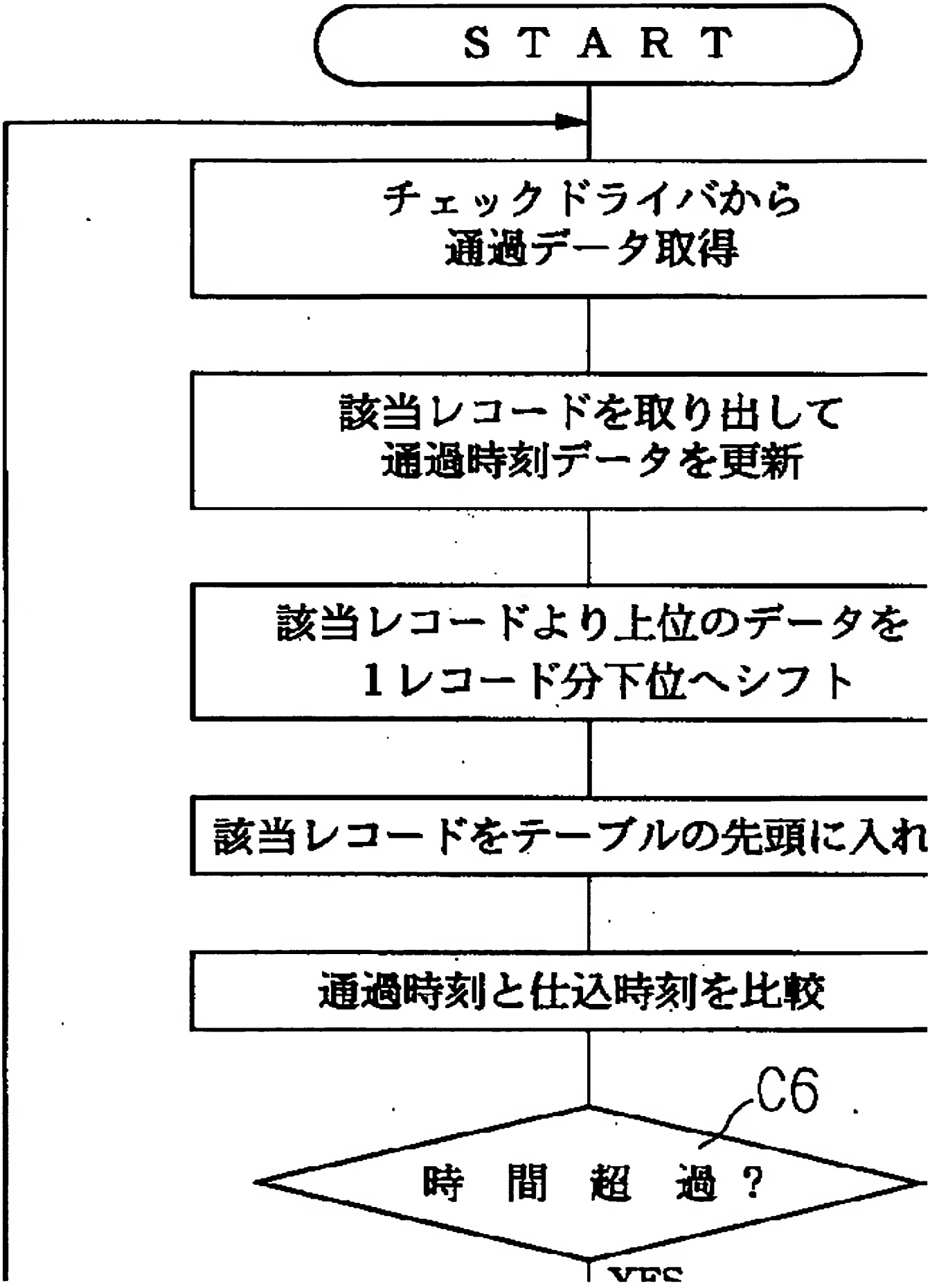

外部通信
1
ホストコンピュータ
仕込データ
ロスデータ
警告指示データ
通過データ
2
管理ドライバ
3
チェックドライバ


11
光
7
2
5
ホストコンピュータ1へ


S T A R T
チェックドライバから
通過データ取得
該当レコードを取り出して
通過時刻データを更新
該当レコードより上位のデータを
1レコード分下位へシフト
該当レコードをテーブルの先頭に入れ
通過時刻と仕込時刻を比較
C6
時 間 超 過 ?
YES

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// Ａ２３Ｌ	1/00		Ｚ		

審査請求　未請求　請求項の数１　ＦＤ　（全　８　頁）

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(22)出願日　平成５年(1993)９月３日

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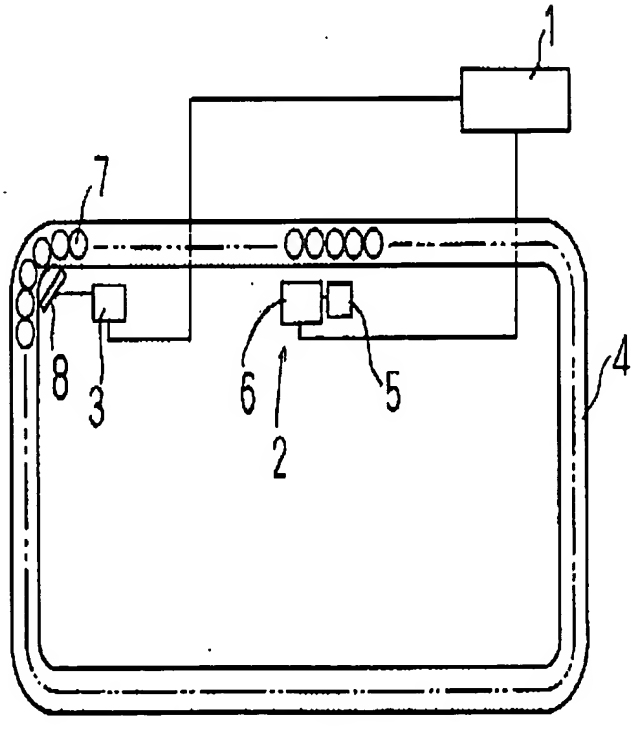
(54)【発明の名称】　食品販売管理システム

(57)【要約】
【目的】販売時点情報および鮮度、品揃え情報をリアルタイムに管理できる食品販売管理システムを提供する。
【構成】食品を載せる皿７に個別の識別番号を付し、皿を運ぶためのエンドレスコンベアよりなるレーン４を設け、レーン上を通過する皿の識別番号を認識し、この識別番号と皿の通過時刻から通過データを生成するチェックドライバ３と、管理者がレーン上に載せる食品の種別、皿の識別番号および仕込み時刻を仕込みデータとして、またレーン上から廃棄する食品の皿の識別番号および廃棄時刻をロスデータとして登録し、かつ管理者が食品の販売状況を監視するための管理ドライバ２とを設け、これら両ドライバをデータ処理およびシステム各部の動作制御を行うホストコンピュータ１に接続し、同ホストコンピュータに送られる前記各種データに基づき、レーン４上に載せられた食品の鮮度および販売状況の管理データが前記管理ドライバから出力され、またホストコンピュータから販売時点情報等の販売データが出力される。



【特許請求の範囲】
【請求項１】食品を載せる皿に個別の識別番号を付し、皿を運ぶためのエンドレスコンベアよりなるレーンを設け、レーン上を通過する皿の識別番号を認識し、この識別番号と皿の通過時刻から通過データを生成するチェックドライバと、管理者がレーン上に載せる食品の種別、皿の識別番号および仕込み時刻を仕込みデータとして、またレーン上から廃棄する食品の皿の識別番号および廃棄時刻をロスデータとして登録し、かつ管理者が食品の販売状況を監視するための管理ドライバとを設け、これら両ドライバをデータ処理およびシステム各部の動作制御を行うホストコンピュータに接続し、同ホストコンピュータに送られる前記各種データに基づき、レーン上に載せられた食品の鮮度および販売状況の管理データが前記管理ドライバから出力され、またホストコンピュータから販売時点情報等の販売データが出力されることを特徴とする食品販売管理システム。

【発明の詳細な説明】
【０００１】
【産業上の利用分野】本発明は食品販売の管理を行うシステムに関し、より詳しくは鮮度を要求される食品の販売状況、販売時点情報の管理に好適なシステムに関する。
【０００２】
【従来の技術】食品の販売には食品の鮮度管理が重要である。特に、食品が販売された時刻等の販売時点情報は、仕入れや食品の品揃えを管理、予測する上で有力なデータとなる。
【０００３】調理済の食品をエンドレスコンベア等に陳列して客の前を移動させ、陳列された食品の中から客が好みのものを自由に選ぶことのできる飲食店が近年増えているが、このような店においても提供、販売する食品の鮮度、品揃えの管理は重要である。
【０００４】例えば、コンベア上に陳列されたすしを客が自由に選ぶタイプのすし店では、どのすし種がどの時刻に売れたかを判断する情報を得ることはできず、食材の仕入れやすしの品揃えは管理者たる板前の勘に頼るほかはなかった。
【０００５】
【発明が解決しょうとする課題】本発明は販売時点情報および鮮度、品揃え情報をリアルタイムに管理できる食品販売管理システムを提供することを目的としている。
【０００６】
【課題を解決するための手段】上記目的を達成するために、本発明の食品販売管理システムは食品を載せる皿に個別の識別番号を付し、皿を運ぶためのエンドレスコンベアよりなるレーンを設け、レーン上を通過する皿の識別番号を認識し、この識別番号と皿の通過時刻から通過データを生成するチェックドライバと、管理者がレーン上に載せる食品の種別、皿の識別番号および仕込み時刻を仕込みデータとして、またレーン上から廃棄する食品の皿の識別番号および廃棄時刻をロスデータとして登録し、かつ管理者が食品の販売状況を監視するための管理ドライバとを設け、これら両ドライバをデータ処理およびシステム各部の動作制御を行うホストコンピュータに接続し、同ホストコンピュータに送られる前記各種データに基づき、レーン上に載せられた食品の鮮度および販売状況の管理データが前記管理ドライバから出力され、またホストコンピュータから販売時点情報等の販売データが出力されるものとしてある。
【０００７】
【作用】レーン上に載せられる食品の皿へ個々に付された識別番号は食品の種別および仕込み時刻とともに仕込みデータとして管理ドライバから登録され、ホストコンピュータへ送られる。エンドレスコンベアよりなるレーン上に載せられた食品は客の前を移動し、この食品を載せた皿の識別番号はチェックドライバにより認識され、通過時刻とともに通過データとしてホストコンピュータへ送られる。
【０００８】ホストコンピュータにおいては前記仕込みデータと通過データに基づいて、通過データが送られて来なくなった食品を販売されたものと判断して販売データとして蓄積する。
【０００９】また、一定の時間を超えてレーン上に残っている食品に対しては、ホストコンピュータから管理ドライバを介して鮮度警告が出力される。さらに、ホストコンピュータにおいてはレーン上に載せられた食品の種別が監視されており、食品の種別に偏りがある場合にはホストコンピュータから管理ドライバを介して品揃え警告が出力される。
【００１０】
【実施例】以下本発明に係る食品販売管理システムをすしの販売に応用するばあいの具体例を基に詳述する。図１はすしの販売に使用する機器の構成を示しており、図中の符号１はシステム全体のデータコントロールおよびシステム各部の動作制御を行うホストコンピュータ、２はすしの仕込み及び廃棄に関するデータの入力や販売状況等を監視するための管理ドライバ、３は後述の通過データを認識するためのチェックドライバを示している。
【００１１】管理ドライバ２およびチェックドライバ３は客の前にすしを運ぶエンドレスコンベアよりなるレーン４内側の調理場に設けてあって、これら管理ドライバ２およびチェックドライバ３とレーン４外に設けたホストコンピュータとの間はＬＡＮ（ローカルエリアネットワーク）で結んであり、相互にデータの受け渡しができるようにしてある。
【００１２】ホストコンピュータ１は管理ドライバ２とチェックドライバ３の動作やデータ受け渡しの制御、各種データの蓄積および管理、管理するデータの統計処理、帳票出力等を行うものとしてある。また、ホストコ

ンピュータ１は外部通信手段を備えており、電話回線等を利用して各種データを外部に送ることができるようにしてある。

【００１３】管理ドライバ２には、仕込んだすしを載せる皿７へ個々に付した識別番号を認識するためのレーダ５を接続してある。また図２に示すように、この管理ドライバ２には管理者たる板前がすしの種別を入力したり、管理者に販売状況等を知らせたりするための入出力パネル６を設けてあって、この入出力パネルには仕込み登録処理、ロス登録処理の切替えを行うための処理切替スイッチ６ａ、６ｂと、すしの種別を入力するための種別ボタン６ｃ、６ｃを設けてあり、また販売データ等の画面表示を行うためのＣＲＴ６ｄおよび音声によって鮮度警告、品揃え警告を行うためのスピーカ６ｅを備えている。

【００１４】なお、図中の符号６ｆは前記種別ボタン６ｃ、６ｃに対応するすしの種別を表示するための種別表示板で、その日の品揃えに応じて交換できるようにしてある。

【００１５】チェックドライバ３にはレーン４上を周回する皿７の個々の番号を認識するためのレーダ８を接続してあり、このレーダ８は後述のトランスポンダ９に指向性があるため、皿７が向きを変えるレーン４の角部の内側に設けてある。

【００１６】図３に示すように、すしを載せる皿７にはアクリル樹脂製の円盤１０内に密封したトランスポンダ９を図４に示すように皿７の糸底に囲まれた底部に接着剤等で固定してあり、皿の洗浄や乾燥の際に、トランスポンダ９が傷まないように保護している。

【００１７】このトランスポンダ９は棒状のもので、内部にアンテナ、電波発信器を備えており、レーダ５、８から発せられる電波を受信し、この電波を電力に変換し、電波発信器から個々のトランスポンダ独自のコード信号を変調波に乗せてレーダへ送り返すものとしてあり、このコード信号を皿の識別番号をして使用する。

【００１８】図５は本発明のシステムにおけるデータ受け渡しの関係を示すものである。ホストコンピュータ１と管理ドライバ２との間では、管理ドライバ２からホストコンピュータ１へ仕込みデータとロスデータが、ホストコンピュータ１から管理ドライバ２へは警告指示信号が送られるようになっている。仕込みデータはレーンに載せるすし皿７の識別番号と、管理ドライバ２における入出力パネル６の種別ボタン６ｃ、６ｃから板前が入力する例えばとろ、えびなどのすしの種別に仕込み時刻を付加したもので、ロスデータは、鮮度が落ちたためにレーンから取り出したすし皿の識別番号へ廃棄時刻を付加したものである。

【００１９】警告指示信号は一定時間を超えてレーン４上に残り、鮮度の落ちたすしを指摘する鮮度警告と、あらかじめ設定された品揃えに対して許容範囲を超えた違いが発生した場合の品揃え警告があり、これらの警告は管理ドライバ２における入出力パネル６に設けたＣＲＴ６ｄの画面表示やスピーカ６ｅの警告音などにより出力される。

【００２０】ホストコンピュータ１とチェックドライバ３との間では、チェックドライバ３からホストコンピュータ１へ通過データが送られる。この通過データはチェックドライバ３に接続されたレーダ８で認識されるレーン４上のすし皿の識別番号へ、すしがレーダ８を通過した時刻を付加したものである。

【００２１】次に、ホストコンピュータ１に送られる仕込みデータ、ロスデータおよび通過データの処理手順の具体例を示す。ホストコンピュータ１においては、レーン４上に載せることのできる皿の枚数に２０程度を加えた個数のデータテーブルを用意し、各種データ処理をこのテーブル間でデータを移動させることによって行っている。

【００２２】図６、７はデータテーブルにおけるデータ処理の手順を示すフローチャートであり、また次に示す表１～４はこの手順によってテーブル上におけるデータの状態の一例を具体的に示すものである。

【００２３】

【表１】

識別番号	種別	仕込み時刻	通過時刻
０００８	とろ	12：15：38	12：16：15
００１５	たこ	12：14：10	12：14：38
０００２	いか	12：13：20	12：14：15

【００２４】

【表２】

識別番号	種別	仕込み時刻	通過時刻
００１０	えび	12：16：12	
０００８	とろ	12：15：38	12：16：15
００１５	たこ	12：14：10	12：14：38
０００２	いか	12：13：20	12：14：15

【００２５】

【表３】

識別番号	種別	仕込み時刻	通過時刻
００１０	えび	12：16：12	
０００８	とろ	12：15：38	12：16：15
０００２	いか	12：13：20	12：14：15

【００２６】

【表４】

識別番号	種別	仕込み時刻	通過時刻
０００２	いか	12：13：20	12：16：42
００１０	えび	12：16：12	
０００８	とろ	12：15：38	12：16：15
００１５	たこ	12：14：10	12：14：38

図６は管理ドライバ２から送られる仕込みデータおよびロスデータの登録手順を示している。ホストコンピュータ１では、管理ドライバ２における入出力パネル６の処理切替スイッチ６ａ、６ｂから入力された処理指示信号と仕込みデータよりなるメッセージを取得すると（Ｓ１）、そのメッセージに基づいて仕込み登録処理、またはロス登録処理を行う（Ｓ２、Ｓ３）。

【００２７】仕込み登録処理ではホストコンピュータ１が管理ドライバ２から仕込みデータを受け取ると、データテーブルの中から空きレコードがあるか否かを調べる（Ｓ４）。ここで、空きレコードがない場合にはテーブル中のもっとも古いデータ、すなわち最下位のデータが販売データとして出力される（Ｓ５）。次にテーブル中の全データを１レコード分下位へシフトし（Ｓ６）、受け取ったデータをテーブルの先頭、すなわち最上位のレコードに入れる（Ｓ７）。

【００２８】表１、２は仕込みデータの登録前後におけるテーブル中のデータの動きを示しており、表１の状態、すなわちレーン４上にとろ、たこ、いかが載っているところへ新たにえびを載せると、えびのデータ（識別番号、仕込み時刻）が最上位のレコードに入り、その他の既存データは下位にシフトさせられて表２に示される状態になる。

【００２９】ロス登録処理ではホストコンピュータ１が管理ドライバ２からロスデータを受け取ると、レーン上から除去されたすし皿の識別番号に該当するテーブル中のレコードを削除し（Ｓ８）、該当レコード以下のデータを１レコード分上位へシフトする（Ｓ９）ことにより、ロス登録処理により削除されて空いたレコードを埋める。削除されたレコード中のデータは廃棄時刻データを付加されてロスデータとして出力されて（Ｓ１０）、ホストコンピュータ１内に蓄積される。

【００３０】表３は表２の状態からロス登録処理がなされた場合の具体例を示しており、表２におけるたこを処分するとたこのデータが抹消され、これにより空いたテーブルはより下位の全データが１つ上位のレコードにシフトすることにより埋められる。

【００３１】図７はレーン４上を周回するすしのチェック処理を行う手順を示しており、ホストコンピュータ１がチェックドライバ３から通過データを受け取ると（Ｃ１）、データテーブル中から該当する識別番号のレコードを取り出して、通過時刻データを更新する（Ｃ２）。

【００３２】次に、該当するレコードよりも上位のデータを全て１レコード分下位にシフトし（Ｃ３）、通過時刻データを更新した該当レコードをテーブルの先頭、すなわち最上位のレコードに入れる（Ｃ４）。

【００３３】表４は表２の状態から、すしがチェックドライバ３に接続されたレーダ８を通過した場合のテーブル中におけるデータの動きを示しており、表２において最下位のレコードに入っていたいかがレーダ８を通過すると、表４に示すように通過時刻データが更新されるとともに最上位のレコードに移動させられ、他のデータは１つ下位のレコードへシフトされる。

【００３４】さらに、このチェック処理においては更新された通過時刻データと仕込み時刻データを比較し（Ｃ５）、これら時刻データの差、すなわちすしがレーン４上を周回していた時間が、すしの鮮度を維持するために定められた一定の時間を超過すると（Ｃ６）、ホストコンピュータ１は警告指示信号を管理ドライバ２へ送る（Ｃ７）。管理ドライバ２はこの警告指示信号を受けると、出力装置６のＣＲＴ６ａから画面表示により、またスピーカ６ｂから警告音により鮮度警告を発する。

【００３５】また、図７のフローチャートに示したチェック処理の流れとは別に、ホストコンピュータ１ではテーブル中のデータを基にレーン４上を周回しているすしの種別ごとの品揃えを監視しており、この品揃えがホストコンピュータに予め設定された品揃え計画に対して許容範囲を超える違いがある場合には、警告信号を管理ドライバ２に送る。管理ドライバ２はこの警告指示信号を受けると、前述した鮮度警告の場合と同様に、出力装置６から品揃え警告を発する。

【００３６】上述したテーブル中でのデータ移動を繰り

返すと、仕込み登録処理の際にテーブルから溢れてしまうデータが出てくる。このデータに該当するすしは、レーン４上に載せることのできる限界枚数を超えて登録されており、しかもこのすしは一定時間レーダ８を通過していないためにチェック処理による通過時刻の更新がなされていないものなので、客がレーン４上から取り出したものと判断され、その判断時刻から予測される販売時刻を付加され、販売データとしてホストコンピュータ１に蓄積される。ホストコンピュータ１に蓄積された販売データは、販売時点情報および売り上げデータに加工され、帳票出力される。

【００３７】また、ホストコンピュータに設けた外部通信手段を用いることにより、例えば蓄積された販売データ等の情報を閉店後に一括して店外の経理センターに送ったり、翌日のすし種の仕入れ量等の情報をセントラルキッチンに送ったりすることができる。

【００３８】なお、上述した実施例においては、識別番号の認識手段として皿７に取り付けたトランスポンダ９とレーダ５、８との間の電波信号授受によって皿の識別番号の認識を行っているが、皿に識別番号を示すバーコードを付し、光学読み取り装置によって認識するようにしてもよい。

【００３９】また、上述した実施例においては、すしの種別の入力手段として管理ドライバ２に設けた入出力パネル６の種別ボタン６ｃを設け、管理者がこのボタン６ｃを操作することによりすしの種別を入力するものとしてあるが、種別入力手段は図８に示すように構成してもよい。

【００４０】この実施例においては管理ドライバ２に接続したレーダ５の上方に、同じく管理ドライバ２に接続した画像処理装置１１を設けてある。この画像処理装置１１は皿７に載せたすしの上方から光を照射し、その反射光をスペクトル分析することにより、すしの形状、色、質等を識別してすしの種別を認識するものとしてある。

【００４１】かくすると、管理者たる板前は仕込んだすしを載せた皿７をレーダ５と画像処理装置１１の間に通すだけで、すしを載せた皿の識別番号とすしの種別とを一度に登録することができる。

【００４２】

【発明の効果】本発明に係る食品販売管理システムは上述した構成のものであるので、次の効果を奏し得る。

【００４３】販売に供される食品は、食品を載せる皿へ個別に付された識別番号により管理され、この番号に食品の種別、仕込み時刻、通過時刻等のデータを付加して処理を行うので、販売判断および各種データ処理を容易に行うことができる。管理者は食品の販売状況を管理ドライバで監視することができ、また管理ドライバから鮮度警告や品揃え警告が出力されるので、鮮度管理や、販売計画に添った品揃えを容易に行うことができる。

【００４４】また、ホストコンピュータに蓄積された販売データを基に販売時点情報を得ることができ、食材の発注や経理統計を正確に行うことができる。

【図面の簡単な説明】

【図１】本発明の実施例に使用する機器の構成を示す図。

【図２】入出力パネルの一例を示す平面図。

【図３】トランスポンダを密封した円盤を示す拡大平面図。

【図４】トランスポンダの取付状態を示す縦断面図。

【図５】実施例に使用する機器間のデータ受け渡し状態を示す図。

【図６】仕込み登録時およびロス登録時の制御手順を示すフローチャート。

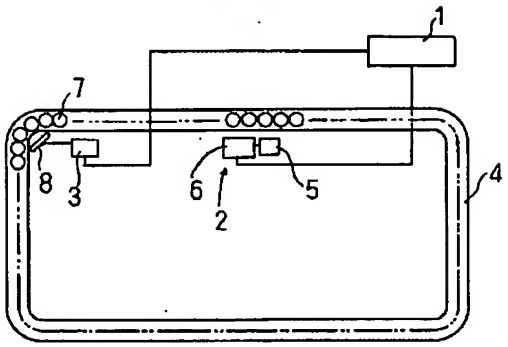
【図７】チェック処理時の制御手順を示すフローチャート。

【図８】他の実施例を示す図。

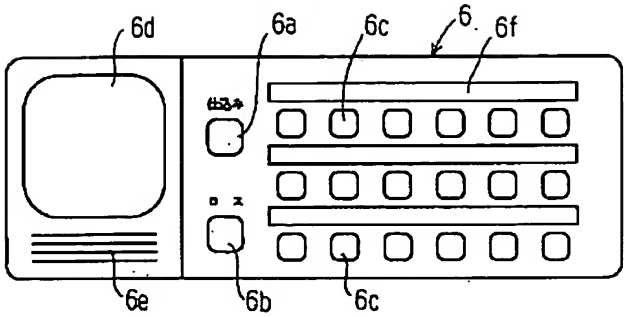
【符号の説明】

１　ホストコンピュータ
２　管理ドライバ
３　チェックドライバ
４　レーン
５　レーダ
６　入出力パネル
６ａ　処理切替スイッチ
６ｂ　処理切替スイッチ
６ｃ　種別ボタン
６ｄ　ＣＲＴ
６ｅ　スピーカ
６ｆ　種別表示板
７　皿
８　レーダ
９　トランスポンダ
１０　円盤
１１　画像処理装置

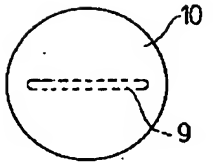
【図１】



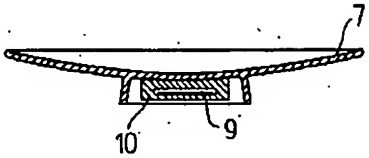
【図２】



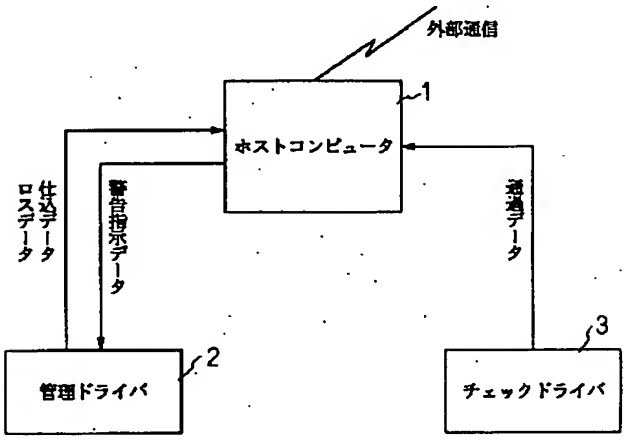
【図３】



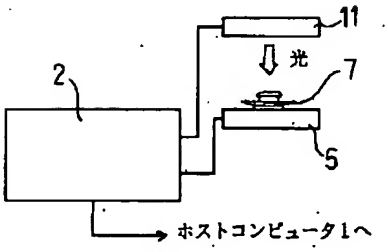
【図４】



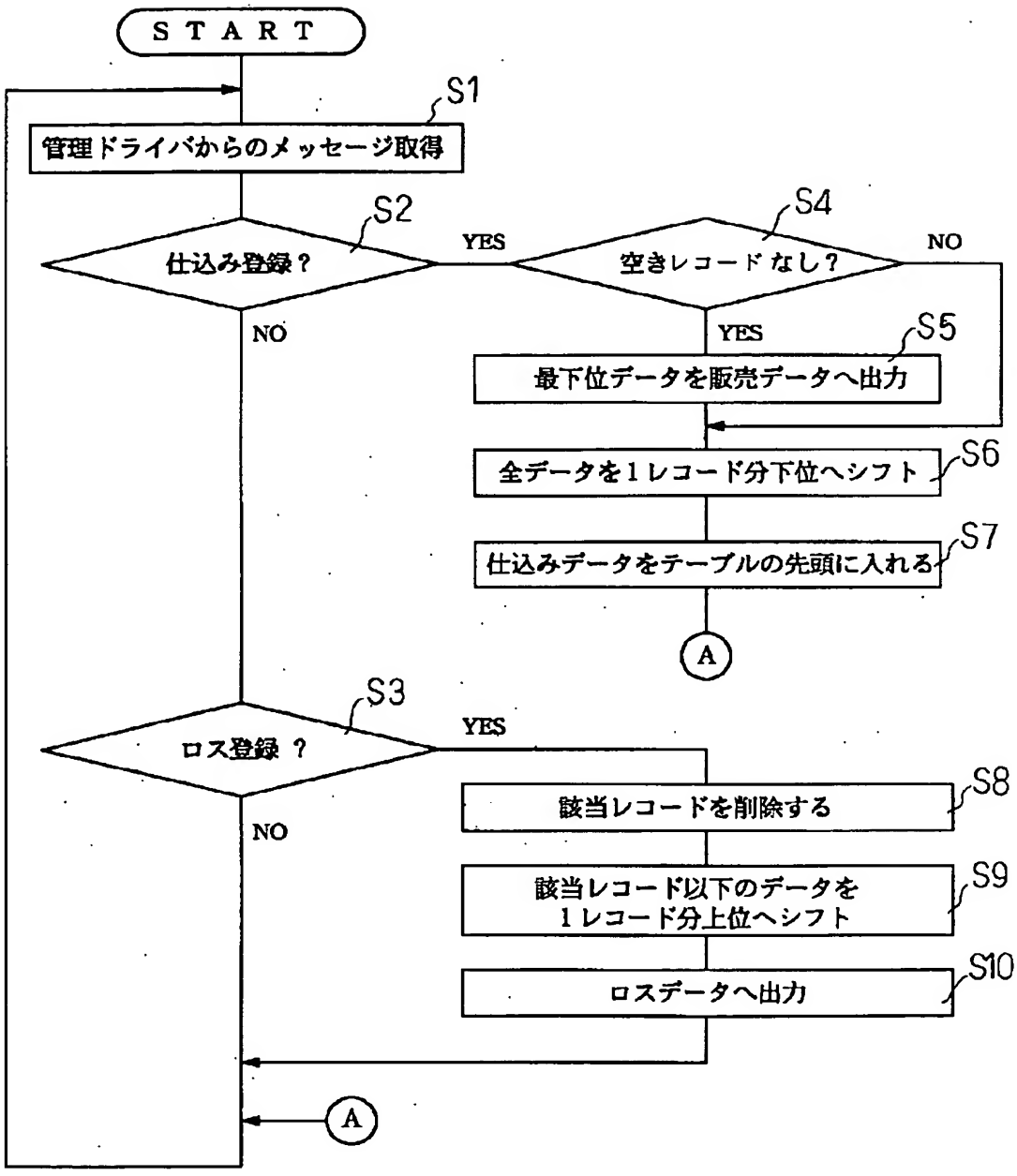
【図５】



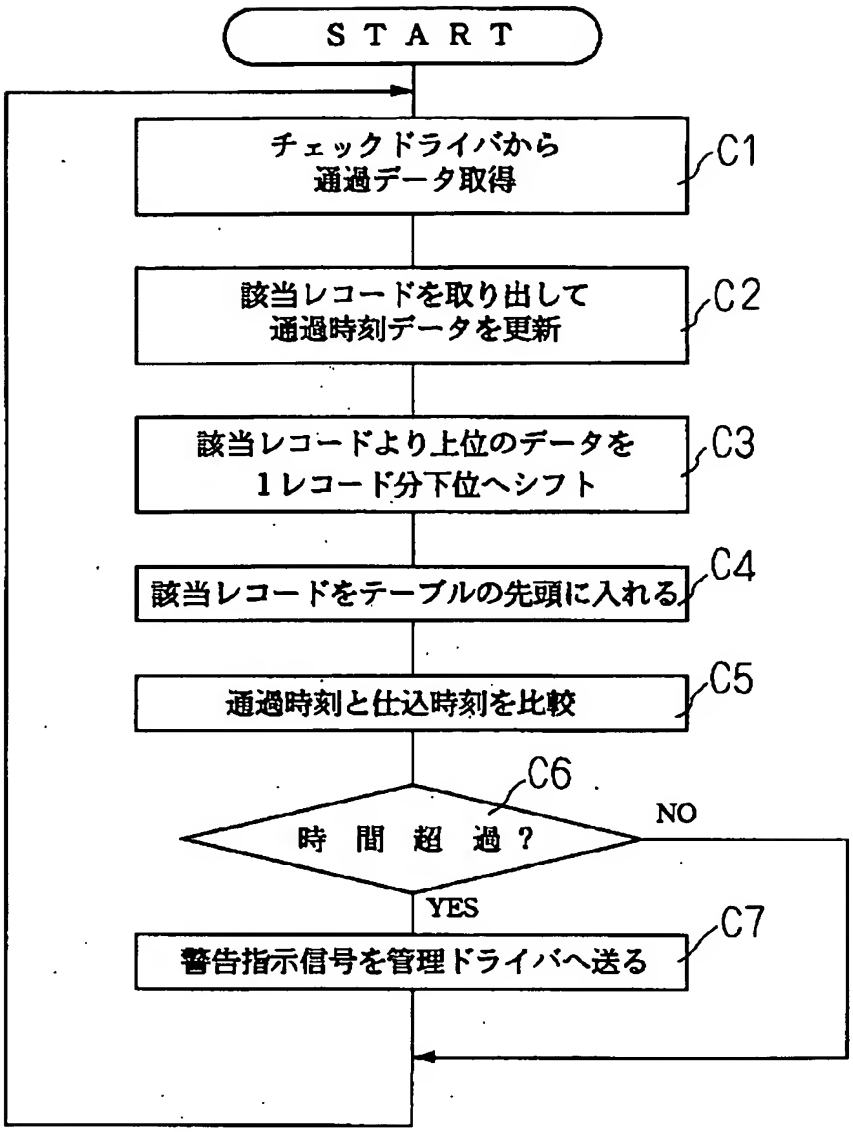
【図８】



【図６】


START
S1
管理ドライバからのメッセージ取得
S2
仕込み登録？
YES
NO
S4
空きレコードなし？
NO
YES
S5
最下位データを販売データへ出力
S6
全データを１レコード分下位へシフト
S7
仕込みデータをテーブルの先頭に入れる
A
S3
ロス登録 ？
YES
NO
S8
該当レコードを削除する
S9
該当レコード以下のデータを
１レコード分上位へシフト
S10
ロスデータへ出力
A

【図７】


ＳＴＡＲＴ
チェックドライバから
通過データ取得
C1
該当レコードを取り出して
通過時刻データを更新
C2
該当レコードより上位のデータを
１レコード分下位へシフト
C3
該当レコードをテーブルの先頭に入れる
C4
通過時刻と仕込時刻を比較
C5
C6
時　間　超　過　？
NO
YES
警告指示信号を管理ドライバへ送る
C7